

Adaptation to climate change of the Lilleau des Niges National Nature Reserve VULNERABILITY ASSESSMENT AND ADAPTATION PLAN

BACKGROUND

Created in 1980 and managed by the [LPO](#), the [Lilleau des Niges National Nature Reserve](#) is located on the Ile de Ré (Charente-Maritime, France). Covering a little more than 235 hectares, the site is divided into two entities: a land part, withdrawn from the sea thanks to successive embankments; and a maritime part, a sandy-muddy foreshore that completely emerges at low tide. Public access is prohibited except for recreational walking fishing and non-motorized navigation. The main socio-economic activities next to the site are salt farming, oyster farming and seaside tourism.

At the local level, **climate change** is characterized by a rise in sea level in the "Pertuis Charentais", a change in the physico-chemistry of marine waters [\nearrow acidity, \nearrow T°C], an increase in temperatures of air as well as extreme phenomena (marine submersion, heat waves) more frequent in the future.

The vulnerability assessment and the adaptation plan are documents aiming to initiate an approach to adaptation to climate change on the reserve. Both were developed as part of the [LIFE Natur'Adapt project](#), coordinated by [Reserves Naturelles de France](#).

SUMMARY OF THE VULNERABILITY ASSESSMENT

In the short term, from the point of view of socio-economic actors, the climate projections would not lead to major upheavals neither in their practices nor in management methods.

For the manager, this nevertheless raises the question of the evolution of the frequentation of the site in the future (2nd most frequented site of the Ile de Ré), and its impact on the natural heritage of the reserve, as

regards of the growing tourist attractiveness of certain coastal areas in the context of climate change. By contrast, **in the long term**, for some stakeholders such as salt workers, the prospect of climate change questions the very existence of their activity. The future of some professions, by the end of the century, is subordinated to the possible solutions provided in the decades to come to deal with the rising water levels, a common problem throughout the territory of the Ile de Ré.

Locally, **the territory's strategy to guard against the risk of marine submersion**, accentuated by the rise in sea level, is to "defend" the coastline through a containment system defined by the local authorities and the State, with the exception of 137 hectares of marshes, including the land part of the nature reserve. Consequently, the dikes crossing the nature reserve will not any more neither be reinforced nor maintained in the future.

The terrestrial part of the site is identified as **highly vulnerable**, with regard to extreme phenomena (storms, marine submersion) and the rise in the level of the oceans, for:

- ➔ the biological challenges of the area: heritage species (*Tolypella salina*, etc.), lagoons and associated ecological functions (resting, feeding and nesting area for water birds, etc.)
- ➔ and the associated management resources: hydraulic network, pastoral and storage infrastructures

For the maritime part, its vulnerability is less pronounced, with regard to the potential effects of climate change on the biodiversity of the intertidal domain.

The evolution prospects of the nature reserve in the future, under the climate change influence, takes shape through the **maritimization of the land part**, which

would go with a reorganization of biological balances in favour of the extending maritime part. The site biological diversity would therefore be reduced, in link with the disappearance of “terrestrial” habitats and their associated ecological functions.

In the light of the local context, the scenario of maritimization seems bound to happen. The question that remains unanswered to this day is “**when** the land will maritize?”

- ☞ **TOMORROW**, further to an extreme natural event?
- ☞ **By 2050**, with the rise in sea level?

SUMMARY OF THE ADAPTATION PLAN

With a view to maintaining, in the future, the site's biological diversity and its ecological functions, the manager has adopted the following **adaptation strategy**, with the long-term objectives of:

- ➔ **Maintain** the lagoon habitat and **support** its development in the reserve during the land maritimization process;
- ➔ **Support the free evolution** of intertidal habitats (schorres, mudflats, eelgrass beds) and their ecological functions in response to the effects of climate change;
- ➔ **Maintain the role of the nature reserve** as an anchoring point for avifauna in the context of maritimization by seeking a spatial and temporal balance of the functionalities (resting, feeding and peaceful areas) of the tidal marshes and diked swamps for the heritage birds at the Ile de Ré scale;
- ➔ **Adapt the management tool** to the reserve changes in connection with global changes and natural risks, while ensuring an optimal functioning;

- ➔ **Ensure knowledge and recognition** of the nature reserve and its challenges (in connection with climate change) on the territory of the Ile de Ré and within the networks of nature protection stakeholders.

These strategic orientations are transposed into **16 operational objectives and 36 actions**.

Here is an extract:

- ➔ **Relocate** some challenges, tools and management resources, which are about to disappear under the effect of the land area being maritized, outside the reserve current perimeter;
- ➔ **Document** the effects of maritimization on both the land and sea parts of the nature reserve;
- ➔ **Dismantle** some infrastructure;
- ➔ **Structure / standardize** datasets and protocols to have initial situations or trends to assess the effects of climate change;
- ➔ **Support** changes in the public's perception of the site's landscape evolutions;
- ➔ **Strengthen** links and partnerships with local actors and territorial administrations, matching the territorial climate change strategies set outside the reserve with the challenges of the nature reserve and the articulation of its adaptation plan;
- ➔ ... etc.

CONSULTATION OF ENTIRE DOCUMENTS

[Vulnerability assessment \(fr\)](#)

[Adaptation plan \(fr\)](#)

